

SCINTILLATOR GEOMETRY FOR ENHANCED RADIATION DETECTION AND REDUCED ERROR SENSITIVITY

Abstract of Disclosure

Disclosed is a radiation detector element assembly. The radiation detector assembly comprises a scintillator and a photo sensor, the scintillator including a first surface proximate to a photo sensor and a second surface distal to the first surface and receptive to a radiation beam. The radiation detector also includes a side portion of the scintillator configured to intercept impingement of a radiation beam thereon and reduce response of the photo sensor to said impingement on the side portion. Also disclosed herein is a method of detecting an incident radiation beam. The method comprising: receiving a radiation beam incident upon a second surface of a scintillator, the scintillator including a first surface proximate to a photo sensor and a second surface distal to the first surface. The method further includes intercepting impingement of a radiation beam with a side portion of the scintillator, the side portion of the scintillator configured to reduce non-linear differential response (in the channel to channel difference) of the photo sensor to the impingement on the side portion. This also enables the reduction of the sensitivity of the scintillation photo sensor to the focal spot motion.

Figures